```
> restart;
> with(linalg):
Warning, the protected names norm and trace have been redefined and unprotected
> R:=matrix(2,2,[[r11,r12],[r21,r22]]);
```

$$R := \begin{bmatrix} r11 & r12 \\ r21 & r22 \end{bmatrix}$$

```
> A:=matrix(2,2,[[a,-b],[b,a]]);
```

$$A := \begin{bmatrix} a & -b \\ b & a \end{bmatrix}$$

```
> inverse(R);
```

$$\begin{bmatrix} \frac{r22}{r11\,r22 - r12\,r21} & -\frac{r12}{r11\,r22 - r12\,r21} \\ -\frac{r21}{r11\,r22 - r12\,r21} & \frac{r11}{r11\,r22 - r12\,r21} \end{bmatrix}$$

```
> C:=simplify(multiply(inverse(R),A,R));
```

$$C := \begin{bmatrix} \frac{r22\,r11\,a - r12\,r11\,b - r22\,r21\,b - r12\,r21\,a}{r11\,r22 - r12\,r21}, -\frac{b\,(r12^2 + r22^2)}{r11\,r22 - r12\,r21} \\ \frac{b\,(r11^2 + r21^2)}{r11\,r22 - r12\,r21}, \frac{-r12\,r21\,a + r12\,r11\,b + r22\,r21\,b + r22\,r11\,a}{r11\,r22 - r12\,r21} \end{bmatrix}$$

```
>
> r11:=I*r21; r12:=-I*r22;
```

$$r11 := r21\,I$$
$$r12 := -I\,r22$$

```
>
> simplify(C[1,1]); simplify(C[2,2]);
```

$$-I\,(a\,I - b)$$
$$-I\,(a\,I + b)$$

```
>
> r21:=1; r22:=1;
```

$$r21 := 1$$
$$r22 := 1$$

```
>
>
```